

THE GENUS *PALUMBIA* RONDANI (DIPTERA: SYRPHIDAE)

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ABSTRACT—The genus *Palumbia* Rondani is reviewed and placed in the tribe Milesiini of Milesiinae. *Korinchia* Edwards is combined with *Palumbia* as a subgenus. Keys to the subgenera and species of *Palumbia* are presented. The species of the subgenus *Palumbia* are redescribed and 2 new species of the subgenus *Korinchia* are described from Malaya, *K. tenax* and *K. vivax*.

Palumbia Rondani (Diptera: Syrphidae) is a small genus of flies which in the past has been considered to belong to either the Eristalini or Milesiini. Rondani (1865) thought his genus was related to *Eristalis* Latrielle as did Sack (1931) and Hull (1949), but Bigot (1860) and Portschinsky (1864) described their species of *Palumbia* in *Milesia* Latreille (= *Sphixea* Rondani). Paramonov (1927) at first thought the group belonged with the Eristalines, but later when he discovered that his species, *Palumbia flavipes*, was the same as Portschinsky's *Milesia eristaloides*, he concluded that *Palumbia* was a milesiine. *Korinchia* Edwards, which is here combined with *Palumbia* as a subgenus, was also placed in with the eristalines (Edwards, 1919; Brunetti, 1923; Hervé-Bazin, 1926; and Shiraki, 1930), although some of its species were originally described in *Milesia*. The confusion over the placement of *Palumbia* (and *Korinchia*) results from the fact that the traditional character on which the taxon, Eristalini (or Eristalinae), was based, the looped third vein, is now known to have also developed independently in the Milesiini (= Xylotinae, *auctores*). All eristaline taxa have pilose metasterna but many milesiine taxa have bare metasterna. *Palumbia* has bare metasterna and thus is placed in the tribe Milesiini.

Genus *Palumbia* Rondani

Head: Higher than long; face concave in female, variable in male, bare, extensively pale pollinose; cheeks broad, about as broad as long; facial grooves short, extending along lower $\frac{1}{4}$ of eye margins and only half way to bases of antennae; facial stripes distinct, narrow, pilose; frontal prominence low, at middle of head; frontal triangle of male short, about as long as vertical triangle, bare; vertical triangle of male short, about $1\frac{1}{3}$ as long as broad at occiput; front of female broad, with sides convergent above, bare on lower 3rd; ocellar triangle clearly before posterior margin of eyes, equilateral; eyes bare, holoptic and touching for distance equal to $\frac{1}{2}$ of vertical triangle in males. Antennae short, about $\frac{1}{2}$ as long as face; 3rd segment orbicular; arista bare, long, about twice as long as antennae.

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Thorax: Distinctly longer than broad, with long bristles above wings, on postalar calli, along margin of scutellum and on posterior edge of mesopleurae; anterior mesopleurae bare; sternopleurae with broadly separated dorsal and ventral pile patches; metasterna intermediate in development, bare; postmetacoxal bridge incomplete; metathoracic spiracle small; metathoracic pleurae bare; scutellum with apical emarginate rim, with a well developed ventral pile fringe consisting of a couple of rows of hairs; legs simple; hind femora not swollen, with numerous ventral spines, without distinct basoventral setal patches. Wings: Marginal cell petiolate, apical cell petiolate, 3rd vein strongly looped into apical cell; anterior crossvein beyond middle of discal cell, at outer fourth of discal cell, oblique; anal cell with a long and slightly curved apical petiole. Apical and posterior crossveins continuous; apical and discal cells without spurs at their apicoposterior corners.

Abdomen: Elongate-oval, weakly emarginate: 1st abdominal spiracle embedded in metathoracic epimeron. Male genitalia: Cerci simple, small, pilose; 9th tergum simple, bare; surstyli pilose, approximately triangular in profile, slightly asymmetric; 9th sternum with ventral membranous areas, with left membranous area about twice as large as right; lingula absent; superior lobes fused to 9th sternum, pilose on basal half, produced into a curved prong, with a large basoventral tooth, with ventral portion of apical prong usually membranous; aedeagus with large earlike lateral lobes, with apical process short and stout; aedeagal apodeme short, broad; ejaculatory apodeme triangular, with apical portion usually extended like a umbrella.

Discussion: *Palumbia* is very closely related to *Pterallastes* Loew, as is indicated by the following synapomorphic characters: a looped third vein (R 4 + 5), bare metasterna, long bristlelike hairs above the wings and on postalar calli, and virtually identical aedeagi. *Palumbia* differs from *Pterallastes* in having the marginal cell petiolate, an apomorphic condition found elsewhere among the Milesiini only in *Milesia*. *Milesia* differs from *Palumbia* in having developed (apomorphic) but pilose (plesio-) metasterna, an angulate anal cell petiole (apo-), and pilose face (plesio-). Thus the presence of a petiolate marginal cell in *Milesia* and *Palumbia* undoubtedly represents convergence, not synapomorphy. The sister group to *Palumbia* is *Pterallastes* Loew; the relationships between these two genera and other milesiine syrphids have been previously discussed by Thompson (1974).

KEY TO SUBGENERA OF PALUMBIA RONDANI

1. Apical cell (R 4 + 5) with long petiole, longer than humeral crossvein (fig. 1); face concave in both sexes (fig. 5); front of female completely pollinose; arista shorter than maximal facial width (western Palaearctic) ----- *Palumbia* Rondani
- Apical cell with short petiole, less than $\frac{1}{2}$ as long as humeral crossvein (fig. 12); face tuberculate in male (fig. 9, 11), concave in females (fig. 10); front of female shiny on lower $\frac{1}{3}$; arista longer than maximal facial width (Oriental, eastern Palaearctic) ----- *Korinchia* Edwards

Subgenus *Palumbia* Rondani

Palumbia Rondani, 1865:129. Type-species, *Palumbia sicula* Rondani by present designation (first of two originally included species, *vide infra*) = *bellieri* Bigot. Subsequent references: Kertész, 1910:266 (catalog citation); Paramonov, 1929:180 (placement in Milesiinae, quotation of original description); Stackelberg, 1930:233 (key reference, place in Milesiinae); Sack, 1931:252 (descript., placed in Eristalinae); Hull, 1949:400 (descript., placed in Eristalinae); Thompson, 1972:203 (descript. notes, placed in Milesiinae-Milesini-*Milesia* group).

Head: Face concave in both sexes, completely yellow pollinose; front of female broad, only about $\frac{1}{4}$ longer than broad at base of frontal prominence, about $\frac{2}{3}$ longer than face, with sides convergent above, about $\frac{2}{3}$ as broad at ocellar triangle as at base of frontal prominence, completely pollinose; arista long, slightly shorter than maximal facial width.

Thorax: With long yellow bristles; mesonotum yellow pilose, densely yellow pollinose; pleurae grayish white pollinose, yellowish to white pilose; posterior pteropleurae bare; hypopleurae including barrettes bare; scutellum with indistinct apical emarginate rim; mesocoxae bare on posterior surface. Wings: Marginal cell with petiole about as long as humeral crossvein; apical cell with petiole longer than humeral crossvein.

Abdomen: Male genitalia: Surstyli approximately triangular in profile, with ventroapical margin concave and apex drawn straight out, slightly asymmetric; 9th sternum with 2 ventral submedial membranous areas, with left membranous area about twice as large as right; superior lobes with dorsal membranous area near base of apical prong; aedeagal apodeme with subapical ventral keel.

Discussion: *Palumbia* is very similar to *Korinchia*, the principal differences between the two being listed in the above key, with the other differences included in the subgeneric descriptions. These differences are the only ones found after a study of the 2 known species of *Palumbia* and five of the 12 known species of *Korinchia*. The geographical vicariance of *Palumbia* and *Korinchia* along with the minor dissimilarities between them strongly suggests that these 2 groups are relatively recent in origin. Thus I have combined *Palumbia* and *Korinchia* as a single genus. Further, since the sister group to *Palumbia* and *Korinchia*, is the genus *Pterallastes* (Thompson, 1974) it is logical to consider the combination, *Palumbia* + *Korinchia*, as equal in age and rank. Hull (1949) gave *Sphixae bellieri* Bigot as the type-species of *Palumbia* but this can not be accepted as a valid type designation since *bellieri* was not among the originally included species. Since I have been unable to locate any other type-species designation for *Palumbia*, I have made the above type-species designation.

KEY TO SPECIES OF THE SUBGENUS PALUMBIA RONDANI

1. Wing with medial brown spot; abdomen tawny with large triangular brown spots on 2nd, 3rd and 4th terga *inflata* (Macquart) (Nearctic?)

- Wing without medial brown spot, hyaline except for a slight grayish tinge on apical half; abdomen black, with large rectangular yellow to orange spots on 2nd tergum, and small and narrow lateral triangular yellow spots on 3rd and 4th terga (Palearctic) 2
2. Legs mainly dark brownish black, yellow on tips of femora, basal $\frac{1}{3}$ or less of front and hind tibiae, all of middle tibiae and hind tarsi; apical margin of last abdominal tergum (4th in males, 5th in females) black *bellieri* (Bigot) (Sicily)
- Legs mainly orange, black only on apical $\frac{2}{3}$ of front tibiae and all front tarsi; apical margin of last abdominal tergum orange *crystaloides* (Portschinsky) (Caucasia)

Palumbia bellieri (Bigot)

Sphixea bellieri Bigot, 1860:776. Type-locality: Sicily, "Monts Madonie" (14° 05'E, 37° 53'N). Types ♂ ♀ BM(NH).

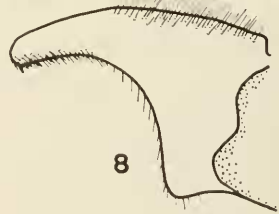
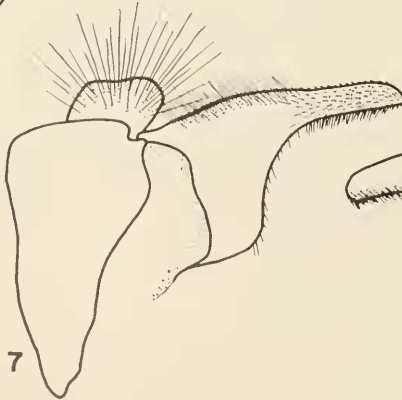
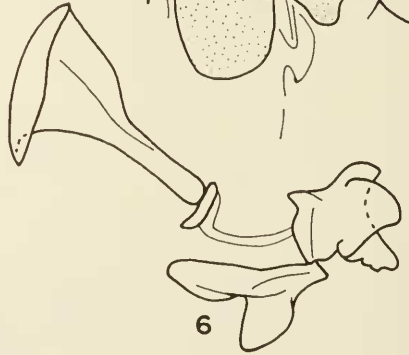
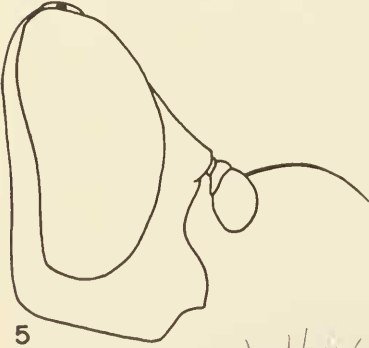
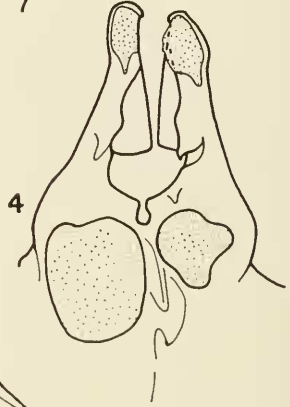
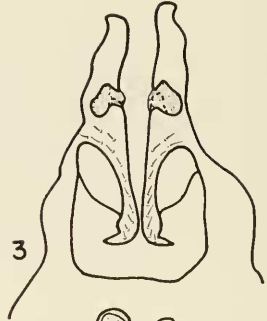
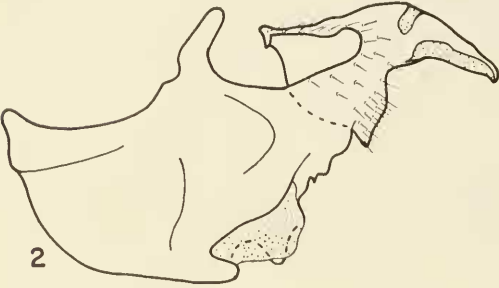
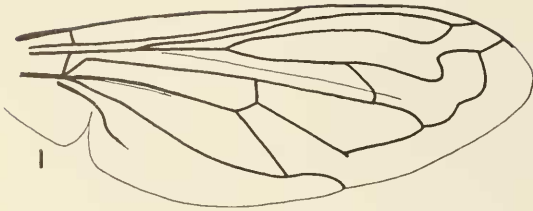
Palumbia bellieri: Rondani, 1868:23 (synonymy); Kertész, 1910:266 (catalog citation, 3 references); Sack 1931:252 (descript. distr.).

Palumbia sicula Rondani, 1864:130. Type-locality: Sicily, "Agro Panormitano" [= country around Palermo]. Types ♂ ♀ Zool. Mus. Univ. Bologna. Synonymy by Rondani, 1868:23.

Head: Face black except yellow laterally, yellowish white pollinose; cheeks black, sparsely whitish pollinose; frontal triangle black, yellow pollinose, bare; front black, yellow pollinose, short yellow pilose on upper $\frac{2}{3}$; vertical triangle black, whitish pollinose on anterior half, yellow pilose; vertex shiny black, yellow pilose; occiput black, white pollinose and pilose below becoming yellow above. Antennae brownish orange, orange pilose, 3rd segment orbicular, about as large as metathoracic spiracle; arista brownish orange.

Thorax: Black; pleurae densely grayish white pollinose, yellow pilose; mesonotum densely yellow pollinose and pilose; plumulae white to yellow; squamae white with orange margin and fringe; halteres yellow. Legs: Coxae black, whitish gray pollinose, white pilose; trochanters and femora brownish black except yellow tips of femora, densely whitish gray pollinose, yellow pilose except black ventral spines on middle and hind femora; femoral spines very sparsely on middle femora and on only apical $\frac{2}{3}$ or less of hind femora; anterior tibiae yellow on basal $\frac{1}{3}$ or less, brownish black on apical $\frac{2}{3}$ or more yellow pilose except brownish pilose on ventral surface; middle tibiae orange, yellow pilose except for a few black hairs ventromedially; hind tibiae yellow on basal $\frac{1}{3}$, orange to brownish orange on apical $\frac{2}{3}$, yellow pilose except for black pile on ventromedial $\frac{2}{3}$ and intermixed on apicolateral $\frac{2}{3}$; anterior tarsi black, black pilose; middle and hind tarsi orange, orange pilose with a few black hairs intermixed. Wings: With a very slight grayish tinge, microtrichose except for bare streak in middle of 2nd basal cell and along anterior edge of anal cell.

Abdomen: Black with yellow markings; 1st segment all black, grayish pollinose, long white pilose; 2nd sternum mainly yellow, slightly darker medially, short appressed yellow pilose except for a few longer apicomedial yellow hairs; 3rd sternum black except yellow laterally, with pile same as sternum; 4th and 5th sternum black, short appressed black pilose, with a few longer yellow hairs intermixed and on apical margins; 2nd tergum with 2 large basolateral quadrate yellow



spots, with black area restricted to a medial inverted T-shaped spot, long yellow pilose laterally, short yellow pilose medially, with black pile restricted to a small apicomedial triangular area; 3rd and 4th terga black with sides yellow, long yellow pilose laterally, short yellow pilose on most of 3rd and on basolateral corners of 4th, short appressed black pilose in form of a large apicomedial triangle on 3rd and on all of 4th except sides and basolateral corners; 5th tergum black except narrowly yellow on lateral margins, long yellow pilose laterally, short yellow pilose on basolateral corners, black pilose elsewhere.

Material examined: 1 ♂ 1 ♀ cotypes of *Sphixea bellieri* Bigot (BM(NH)).

Palumbia cristaloides (Portschinsky)

Milesia cristaloides Portschinsky, 1887:187, pl. 4, fig. 4 (wing). Type-locality: "Transcaucasus (Daratschitschach)" Types ♂ ♀ Zool. Mus., Leningrad. Subsequent references: Kertész, 1910:470 (catalog citation).

Palumbia cristaloides: Paramonov, 1929:180 (synonymy); Zimina, 1960:663 (distr. rec. (Transcaucasus), flower records); Stackelberg & Richter, 1968:272, fig. 4 (habitus) (distr. recs. (Caucasus), notes).

Palumbia flavipes Paramonov, 1927:11. Type-locality: Armenia, "Berg Karny-Jarych [= Gora Arailer, 40°24'N, 44°26'E] (Bez. Etschiazin)" [= Echmiadzin]. Type ♂ "author collection." Subsequent references: Sack, 1931:253 (descript., distr.). Synonymy by Paramonov, 1929:180.

Male: Head: Face yellow, yellow pollinose; cheeks mostly shiny black and bare, yellow pollinose and pilose on posterior edge; frontal triangle black, densely yellow to white pollinose, bare; front black, yellow pollinose, short yellow pilose on upper $\frac{2}{3}$; vertical triangle black, whitish pollinose on anterior $\frac{1}{2}$, yellow pilose; occiput black, yellow to whitish pollinose, yellow pilose. Antennae orange, orange pilose; 3rd segment orbicular, as large or larger than metathoracic spiracle; arista orange.

Thorax: Black; pleurae densely grayish white pollinose, yellow pilose; mesonotum densely yellow pollinose and pilose; plumulae white, squamae white with orange margin and fringe; halteres yellow. Legs: Mainly orange and short orange pilose; coxae black, grayish white pollinose, long yellow pilose; anterior tibiae black on anteroapical $\frac{2}{3}$ and posteroapical $\frac{1}{4}$ or less; black pilose on black areas; anterior tarsi all black, black pilose; middle femora sparsely black pilose on ventral surface, middle tibiae sparsely black pilose on apicoventral $\frac{1}{3}$; hind trochanter sparsely black pilose; hind femora densely covered black spinelike hairs on ventral surface; hind tibiae black pilose on medial $\frac{1}{3}$; all femora sparsely whitish pollinose. Wings: With very slight grayish tinge, microtrichose except for bare streak in middle of 2nd basal cell and along anterior edge of anal cell.

Abdomen: Black with yellow markings; 1st segment all black, grayish pollinose, long white pilose; 2nd sternum black except yellow laterally, appressed short yellow pilose except for a few long apicomedial yellow hairs; 2nd tergum with 2

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Fig. 1-8. Features of *Palumbia cristaloides* (Portschinsky), male, all lateral view except fig. 1 and 3 dorsal and 4 ventral. 1, wing. 2, 9th sternum. 3 and 4, apical portion of 9th sternum. 5, head. 6, axial system. 7, 9th tergum and associated structures. 8, left surstyle.

large basolateral quadrate yellow spots, with black area restricted to a medial inverted T-shaped spot, long yellow pilose laterally, short appressed yellow pilose on yellow areas, short appressed black pilose on black areas; 3rd thru 4th or 5th sterna black, except reddish orange on apical $\frac{1}{2}$ on apical sternum (4th in males, 5th in females), short yellow pilose except longer apically; 3rd and 4th terga, black except narrowly yellow laterally and reddish yellow on apical margin of 4th tergum, slightly yellow pollinose laterally, long yellow pilose laterally, short appressed yellow pilose broadly on basolateral corners and apical margin of 4th tergum, short appressed black pilose elsewhere; 5th tergum black on basal half, yellow laterally, reddish yellow on apical half, yellow pilose with pile longer on sides; genitalia reddish orange, yellow pilose.

Material examined: USSR, ARMENIAN SSR: Azizbekovskiy Region, Gerger, 16 June 1957, V. Richter, 1 ♂ (BM(NH)); Vedinskiy Region, Forest near Khosrov (39° 57'N, 44° 50'E), 18 July 1969, V. Richter, 1 ♀ (FCT). USSR, AZERBAIJAN SSR: Ordubadskiy Region, Forest near Khurs (39° 12'N, 45° 54'E), 31 July 1970, 1 ♂ (FCT). TURKEY, Erzurum, 5,000 ft., 22 July 1960, Guichard and Harvey, 1 ♂ (BM(NH)).

Discussion: *Palumbia bellieri* and *eristaloides* are very closely related, apparently differing only in the color of the legs and apical margin of the last abdominal tergum (see key). The genitalia of the 2 species are identical. Thus, this similarity strongly suggests that these 2 "species" may represent only geographical races. However, until more is known about the distribution and geographic variation in *Palumbia* (*Palumbia*) I prefer to accept *bellieri* and *eristaloides* as valid species.

Palumbia inflata (Macquart)

Eristalis inflatus Macquart, 1834:507. Type-locality: "De l'Amerique septentrionale" Type(s)? lost. Subsequent references: Osten Sacken, 1878:133 (could not find the type either at Lille or Paris); Williston, 1887:178 (included as unrecognized species); Kertész, 1910:222 (catalog citation, 4 references); Wirth, et al., 1965:624 (included as unrecognized species).

Palumbia inflata: Rondani, 1865:130 (transfer to *Palumbia*).

"Face without a tuberele, grayish white, as is the front. Antennae tawny, not inserted on a prominence. Thorax blackish, yellow pilose; scutellum brown. Abdomen short, rounded-off apically, tawny; second, third and fourth segments with large triangular brown spots. Legs blackish; anterior tibiae half white; hind femora tawny, with tip black. Wings with a brown spot in the middle." Translation of Macquart's original description.

Discussion: Apparently this species has not been recognized since its original description. As noted above, the types of *inflata* are probably lost. Rondani, on the basis of Macquart's description, merely transferred *inflata* to his new genus *Palumbia*. While no subsequent author has followed Rondani's inclusion of *inflata* in *Palumbia*, I can see no reason to doubt his placement. On the basis of Macquart's description this species has bare eyes and arista, simple hind femora,

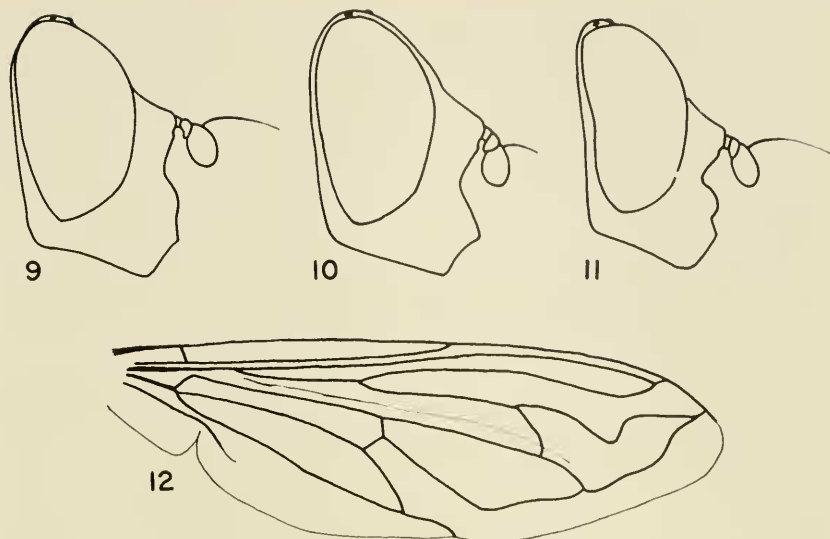


Fig. 9-11. Heads of *Palumbia* (*Korinchia*) species, lateral view. 9, *P. vivax* Thompson, male. 10, *P. vivax* Thompson, female. 11, *P. pendleburyi* (Curran), male. Fig. 12. Wing of *Palumbia* (*Korinchia*) *tenax* Thompson.

no facial tubercle, petiolate marginal and apical cells, and a looped third vein ($R\ 4 + 5$). These characteristics can apply *only* to a species of *Palumbia* (*Palumbia*). Having arrived at the conclusion that *inflata* does belong to *Palumbia* s.s. the question of what species does the name apply to remains. Macquart stated that his species was from North America and if this is accurate, then his species is either now extinct or extremely rare since no one has ever collected a *Palumbia* species in the New World. Another alternative is to assume that type-locality is in error and perhaps the species was from the Palearctic Region where *Palumbia* is known to occur. However, even if this was so, Macquart's original description does not readily fit either of the 2 known *Palumbia* (*Palumbia*) species. To make Macquart's description fit a known species would require assuming that Macquart made additional errors in his work and, if we are going to do this, we might then even question the accuracy of Macquart's statements on which the placement in *Palumbia* s.s. rests. Thus, taking Macquart's description of *inflata* as it is, I conclude it is best to leave *inflata* as an unrecognized species of *Palumbia* (*Palumbia*).

Subgenus *Korinchia* Edwards

Korinchia Edwards, 1919:39 (as a genus). Type-species *Korinchia klossi* Edwards by designation of Brunetti, 1923:224. Subsequent References: Brunetti, 1923:224, 415 (descript., type-species design., placed in Eristalinae); de

Meijere, 1924:201 (diff. from *Milesia*); Curran, 1928:150 (key reference); Shiraki, 1930:153 (descript., key to spp., placed in Eristalinae, related to *Meromacrus*); Hull, 1949:362 (descript., transfer to Xylotinae); Thompson, 1972:83, 84 & 203 (descript. notes, placed in Milesinae-Milesini-*Milesia* group).

Head: Face concave in female, tuberculate in male; front of female broad, about as long as broad at base of frontal prominence, about as long as face, with sides convergent above, about $\frac{1}{3}$ to $\frac{1}{2}$ as broad at ocellar triangle as at base of frontal prominence; arista long, much longer than maximal facial width.

Thorax: With variable pleural pile, with or without pile on posterior pteropleurae, hypopleurae, barrettes; mesocoxae bare or pilose on posterior surface; scutellum with distinct apical emarginate rim. Wings: Marginal cell with petiole shorter than (usually $\frac{1}{2}$ or less) humeral crossvein; apical cell with petiole shorter than (usually $\frac{1}{2}$ or less) humeral crossvein.

Abdomen: Male genitalia: Ninth sternum with a single ventral membranous area, asymmetric in shape; superior lobes without a dorsobasal membranous area.

Discussion: The subgenus *Korinchia* displays more interspecific variation in pleural pile patterns than any other syrphid genus known to me. The posterior pteropleurae, barrettes, and hypopleurae in front of metathoracic spiracle may be pilose or bare in *Korinchia* species. Also, the presence or absence of hairs in front of the metathoracic spiracle may vary within a single species or a single individual. This variation in pleural pile possibly could be used to divide the subgenus into species groups. On the basis of the species I have studied, the following groups are suggested: 1) *simulans* and *vivax*, both have the posterior pteropleurae and barrettes pilose, as well as having very similar male genitalia; 2) *pendleburyi* has the posterior pteropleurae and barrettes bare, but the posterior surface of the mesocoxae is pilose; 3) *sinensis* and *tenax*, both have the posterior pteropleurae, barrettes and posterior surface of mesocoxae bare. Phylogenetically, I would suggest that the *simulans* + *vivax* group to be the plesiomorphic to the other two and the *pendleburyi* group to be plesiomorphic in respects to *sinensis* + *tenax*. Despite this apparent diversity in pleural pile species of *Korinchia* are fairly uniform in appearance and other structural characters.

KEY TO THE SPECIES OF THE SUBGENUS KORINCHIA EDWARDS

(ADAPTED FROM CURRAN, 1931:372)

- | | |
|---|---|
| 1. Scutellum black in ground color, frequently with margin broadly yellow or brown | 2 |
| — Scutellum wholly reddish in ground color | |
| <i>rufa</i> Hervé-Bazin (1922a:122, India) | |
| 2. Scutellum with normal erect pile | 3 |
| — Scutellum with dense appressed tomentose golden pile, with long brown bristles on margin ... <i>aurata</i> Hervé-Bazin (1922b:213, Java; 1926:87, Laos) | |
| 3. Front tarsi wholly or mostly black | 5 |
| — Front tarsi wholly reddish yellow or light brownish | 4 |

4. Face grayish white pollinose except for shiny black medial vitta; mesonotum and scutellum yellow pilose with grayish-yellow bristles; abdomen all black, with bronze lateral spots on 2nd thru 4th terga
 *potauini* Stackelberg (1963:5, China)
- Face golden yellow pollinose, without black medial vitta, with mouthedge and lateral vittae yellow brown; mesonotum mainly black pilose, with only a few reddish-yellow bristles on sides; abdomen mostly dark brown, with reddish-brown apical bands on terga; 4th tergum with large orangish-yellow medial spot *apicalis* Shiraki (1930:157, Formosa)
5. Second abdominal tergum with large reddish or yellow lateral spots
 *formosana* Shiraki (1930:154, Formosa)
- Second tergum with at most small reddish spots on anterior corners 6
6. Posterior alar calli yellow pilose on outsides 7
- Posterior calli wholly black pilose 9
7. Scutellar pile largely blackish 8
- Scutellar pile mostly yellowish 10
8. Fourth abdominal tergum with large yellowish-gray lateral patches
 *klossi* Edwards (1919:40, Sumatra)
- Fourth tergum without such grayish patches
 *robisoni* Edwards (1919:41, Sumatra)
9. Mesonotum with yellowish-brown bristles above wings
 *simulans* (de Meijere) (1914:144, Java)
- Mesonotum with black bristles above wings
 *minor* (de Meijere) (1919:21, Sumatra)
10. Posterior pteropleurae, barrettes and usually in front of metathoracic spiracle pilose *vivax* new species
- Posterior thoracic pleurae bare 11
11. Frontal triangle (♂) and front (♀) black 12
- Frontal triangle (♂) and front (♀) yellow *tenax* new species
12. Second and 3rd abdominal terga all orange pilose; mesocoxae with posterior surface bare; 3rd antennal segment with a large semicircular sensory pit (fig. 17) *sinensis* Curran (1929:503, China)
- Second and 3rd abdominal terga black pilose medially; mesocoxae with posterior surface pilose; 3rd antennal segment with a short straight sensory pit (fig. 16) *pendleburyi* Curran (1931:373, Borneo)

Palumbia (Koriuchia) vivax Thompson, new species

Head: Face longer and produce downward more than *tenax* with tubercle low, yellowish gold, completely yellow pollinose; cheeks shiny brown on anterior half, yellow and yellow pollinose and pilose on posterior half; frontal triangle yellowish gold, shiny above antennal bases, yellow pollinose elsewhere; vertical triangle brownish black, yellow pollinose in front of ocellar triangle; ocellar triangle brownish pollinose, yellow pilose; occiput bright yellow, yellow pollinose and pilose except narrowly dark brown pollinose behind eyes on upper ¼ and with a few short black cilia on upper ¼. Antennae orange, orange pilose; 3rd segment with a short straight sensory pit; arista orange.

Thorax: Light brown; mesonotum mainly dark brown pollinose, with tawny yellow pollinose bands along anterior edge and transverse sutures, with band along transverse sutures broadly interrupted medially, with a semicircular tawny-

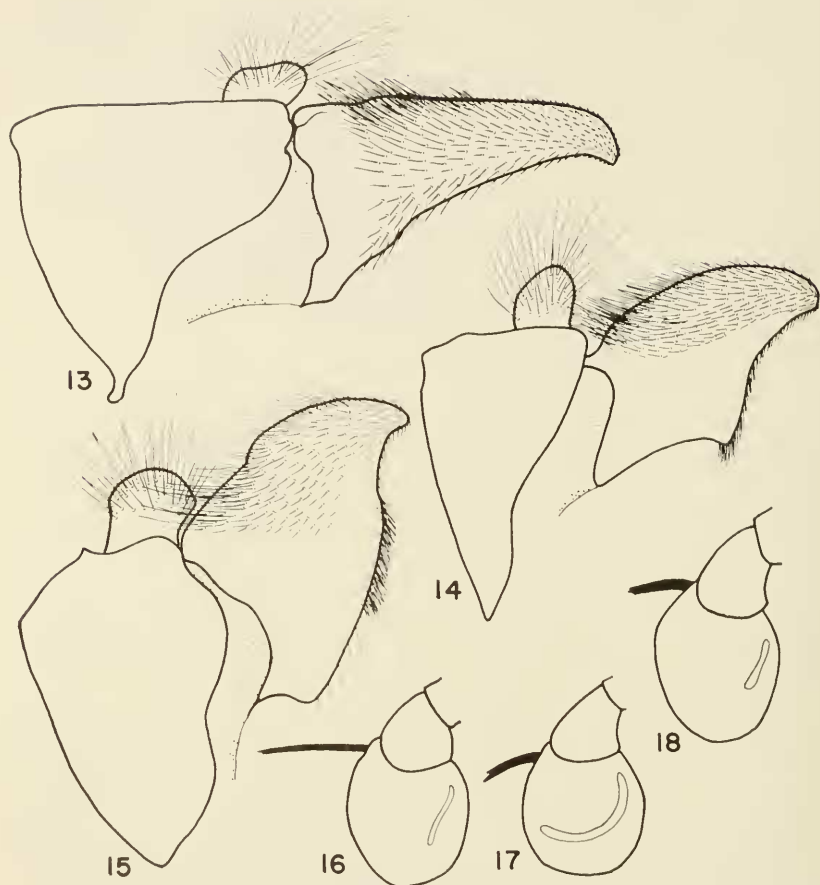


Fig. 13-15. Ninth tergum and associated structures of male genitalia, lateral view. 13, *Palumbia vivax* Thompson. 14, *P. pendleburyi* (Curran). 15, *P. tenax* Thompson. Fig. 16-18. Antennae of *Palumbia* (*Korinchia*) species, inner side in lateral view. 16, *P. pendleburyi* (Curran). 17, *P. sineusis* (Curran). 18, *P. vivax* Thompson.

yellow pollinose spot in front of scutellum, tawny pilose on light areas and dark brown pilose on dark areas, with long orange bristles above wings and on postalar calli; postalar calli dark brown on inner part; mesonotal pile longer and with more tawny pile intermixed than in *tenax*; pleurae yellow pilose, grayish white pollinose except densely yellow pollinose on upper sternopleurae, posterior mesopleurae and anterior pteropleurae, with a very few black hairs intermixed on upper posterior corner of posterior mesopleurae; posterior pteropleurae pilose, barrettes pilose medially; meropleurae pilose in front of metathoracic spiracles; mesocoxae with posterior surfaces pilose; scutellum dark brownish black except tawny-yellow mar-

gin, tawny pilose, with a few black hairs intermixed; plumulae white; squamae dirty white with brown margin and fringe. Wings: Hyaline except brownish apex, completely microtrichose; epaulets black pilose. Legs: Coxae orange, white pollinose, orange pilose; front trochanters and femora orange and orange pilose; front tibiae orange and orange pilose on base on posterior $\frac{2}{3}$, black and black pilose on anterior $\frac{1}{2}$; front tarsi black except orange apical tarsomere, black pilose; middle leg orange, orange pilose except for a few short black hairs on apicoventral margin and posterior apicolateral edge of femora; hind leg orange, with femora slightly darker than tibiae and tarsi, with only a small patch of black setae on trochanters and femora black pilose ventrally.

Abdomen: Dorsum mainly orange pilose, with a medial patch of black pile on 3rd tergum and bright yellow pilose on posterior margins of all terga; 1st tergum mostly orange and yellow pollinose; 2nd tergum brown with posterior $\frac{1}{4}$ orange, dull except bright yellow pollinose on posterior $\frac{1}{4}$; 3rd tergum orange except for a large medial black spot, dull except bright yellow pollinose on basolateral edges and posterior $\frac{1}{3}$; 4th tergum orange except for a small faint dark brown basomedial spot, dull except bright yellow pollinose on basolateral edges and posterior half; venter brown except yellowish white on posterior margins of sterna, sparsely grayish white pollinose, long yellow pilose except short yellow pilose medially on 4th sternum with a few black hairs intermixed. Male genitalia: Brown, long golden pilose, with a very few short black hairs intermixed; surstyli elongate, narrowly triangular, with tip recurved, extensively pilose; 9th sternum elongate, with a small irregularly shaped ventral membranous area on right side; superior lobe with long curved apical prong ending in a short hook, with a large sharp subbasal tooth, with a small basolateral patch of hairs; aedeagus with lateral lobes greatly enlarged dorsally into an acute cone with a subbasal anteriorly directed tooth; aedeagal apodeme with subapical ventral keel.

Female: Similar to male except as follows: front shiny above antennae, with medial $\frac{1}{3}$ yellow pollinose and upper $\frac{1}{3}$ brownish black pollinose, with upper $\frac{2}{3}$ yellow pilose; legs with only a few ventral black hairs setae and with no black setae on hind trochanters; abdomen without dark spot on 3rd and 4th terga, with 5th tergum all orange and subshiny, completely orange pilose.

Material examined: MALAYA, Pahang, Fraser's Hill, 4,000 ft.; H. M. Pendlebury; 29 January 1929 (holotype ♂), 26 January 1929 (allotype ♀), 8 June 1941 (paratype ♂). The holotype and allotype are deposited in the British Museum (Natural History); the paratype is deposited in the author's collection.

Discussion: *Palumbia vivax* is very similar to both *P. pendleburyi* and *tenax* but is quite different in respect to its pleural pile pattern and male genitalia as noted above. Also the head is produced downwards much more than in either *P. pendleburyi* or *tenax* (fig. 9-11). *Palumbia vivax* can be contrasted with *P. pendleburyi* as follows: 1) front is yellow, not black; 2) cheeks are brown, not yellow; 3) mesonotal bristles are reddish orange, not bright yellow; 4) mesonotal pile is long and mostly yellow, not long and mainly black; 5) abdominal terga are almost completely orange pilose, only with a small medial patch of black pile on 3rd tergum in male, not extensively black pilose medially on all terga; and 6) male terminalia is long golden pilose, not short black pilose. *Palumbia vivax* is very similar to *P. tenax* in

color characteristics, differing only in the dark brownish orange cheeks which are yellow in *tenax*.

Palumbia (Korinchia) tenax Thompson, new species

Head: Face short, with tubercle prominent, yellowish gold, completely yellow pollinose; cheeks yellow, shiny on anterior half, yellow pollinose and pilose on posterior half; frontal triangle yellowish gold, shiny above antennal bases, yellow pollinose elsewhere; vertical triangle brownish black, yellow pollinose in front of ocellar triangle; ocellar triangle brownish pollinose, yellow pilose; occiput bright yellow, yellow pollinose and pilose except narrowly dark brown pollinose behind eyes on upper $\frac{1}{4}$ and with a few short black cilia on upper $\frac{3}{4}$. Antennae (3rd segment missing) orange, black pilose except orange pilose on sides of 2nd segment.

Thorax: Light brown; mesonotum mainly dark brown pollinose, with tawny yellow pollinose bands along anterior edge and transverse sutures, with band along transverse sutures broadly interrupted medially, with a semicircular tawny-yellow pollinose spot in front of scutellum, tawny pilose on light areas and dark brown pilose on dark areas, with long orange bristles above wings and on postalar calli; postalar calli dark brown pilose on inner part; pleurae yellow pilose, grayish white pollinose except densely yellow pollinose on upper sternopleurae, posterior mesopleurae and anterior pteropleurae; posterior pteropleurae, hypopleurae and barrettes bare; mesocoxae with posterior surface bare; scutellum dark brownish black except tawny-yellow margin, tawny pilose with a few black hairs intermixed; plumulae dirty white; squamae dirty white with brown margin and fringe. Wings: Hyaline except brownish apex, completely microtrichose; epaulets black pilose. Legs: Coxae orange, white pollinose, orange pilose except for a very few short black apical setae; front trochanters and femora orange and orange pilose; front tibiae orange and orange pilose on base and posterior half, black and black pilose on anterior half; front tarsi black and black pilose; middle leg orange, orange pilose except for a few short black hairs on apicoventral margin and posterior apicolateral edge of femora; hind leg orange, with femora slightly darker than tibiae and tarsi, with trochanters covered with black setae and femora black pilose ventrally.

Abdomen: Dorsum completely orange pilose except bright yellow pilose on posterior margins of terga; 1st tergum brown, dull except yellow pollinose on basal corners and posterior margins; 2nd tergum brown with posterior $\frac{1}{4}$ orange, dull except bright yellow pollinose on posterior $\frac{3}{4}$; 3rd tergum orange except for a faint medial brown spot on anterior $\frac{1}{2}$, dull except bright yellow pollinose on posterior $\frac{3}{8}$; 4th tergum orange, dull except bright yellow pollinose on posterior $\frac{1}{2}$; venter brown except yellowish white on posterior margins, sparsely grayish-white pollinose, long yellow pilose except short black pilose on posterior margin of 4th sternum. Male genitalia: Brown, short black and golden pilose; surstyli short and broadly triangular, with apical portion slightly curved, pilose on dorsal $\frac{1}{2}$ and along ventral margin; 9th sternum short, with a large medial ventral membranous area, almost symmetrical in shape, with apical prong short and almost straight, with subbasal tooth large and sharply pointed, pilose uniformly except bare on apical prong and subbasal tooth; aedeagus with lateral lobes small and triangular; aedeagal apodeme without subbasal ventral keel.

Material examined: MALAYA, Pahang, Cameron's Highlands, Simgai Pareng Path, 4850 ft.; 25 May, 1931; H. M. Pendlebury (1 ♂, Holotype). The type is deposited in the British Museum (Natural History).

Discussion: *Palumbia tenax* is very similar to *P. pendleburyi* but can be contrasted as follows: 1) front is yellow, not black; 2) mesonotal bristles are reddish orange, not bright yellow; 3) mesonotal pile is short and mostly brownish yellow, not long and mainly black; 4) abdominal terga are all orange pilose, not extensively black pilose medially; 5) 3rd and 4th abdominal terga are orange, not brownish black; and 6) male terminalia has both long golden pile and shorter black pile intermixed, not just short black pile.

Palumbia (Korinchia) pendleburyi (Curran)

Korinchia pendleburyi Curran, 1931:373. Type-locality: North Borneo, Mt. Kinabalu, Kamborangah, 7,200 ft. Type-depository: ♂ HT BM(NH). NEW COMBINATION.

I have studied a paratype male of this species (in AMNH). The following characters were noticed in addition to those described by Curran in his original description.

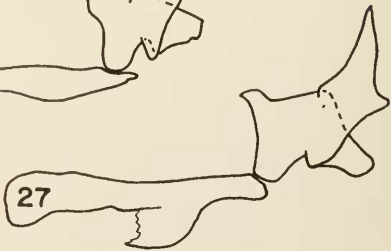
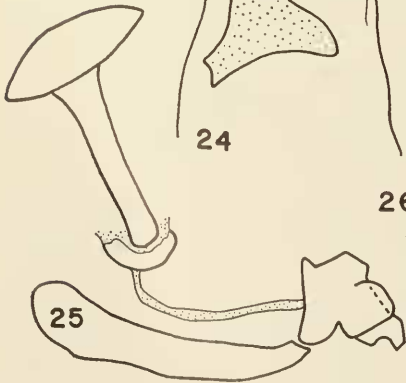
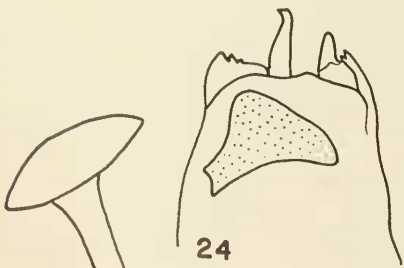
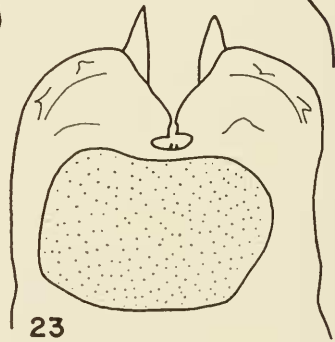
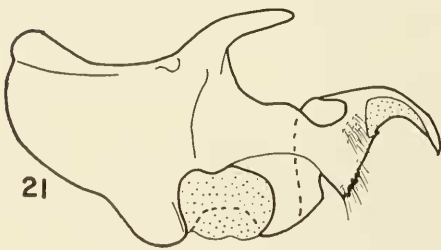
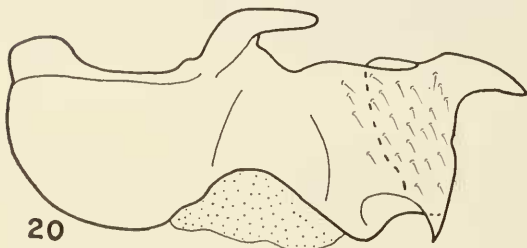
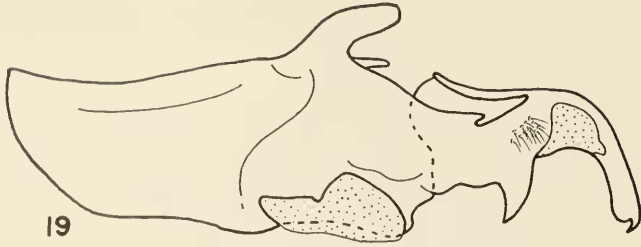
Antennae black pilose except orange on inner side of 2nd segment; 3rd segment with a short inner sensory pit; mesocoxae with posterior surface pilose; posterior pteropleurae, barrettes and in front of metathoracic spiracle bare; wings completely microtrichose, with epaulets black pilose. Male genitalia: Surstyli short, slightly quadrate in shape due to a triangular production on ventral margin, pilose on dorsal $\frac{1}{2}$ and along apical part of ventral margin; 9th sternum short, with a small submedial ventral membranous area, with membranous area irregular in shape, with apical prong short and narrow and strongly recurved, with subbasal tooth broad and blunt and with serrated edge, pilose on subbasal tooth and base of apical prong; aedeagus with lateral lobes small and triangular; aedeagal apodeme with subbasal ventral keel.

Palumbia (Korinchia) sinensis (Curran)

Korinchia sinensis (Curran), 1929:503. Type-locality: China, Sechuen, Suifu. Type-depository: HT ♀ U.S. Natn. Mus. NEW COMBINATION.

I have studied a paratype female of this species (in AMNH). The following characters were noticed in addition to those described by Curran in his original description.

Antennae completely black pilose; 3rd antennal segment with a long semi-circular inner sensory pit; mesocoxae with posterior surface bare; posterior pteropleurae, barrette, and in front of metathoracic spiracle bare; wings completely microtrichose; epaulets black pilose.



Palumbia (Korinchia) simulans (de Meijere)

Milesia simulans de Meijere, 1914:144. Type-localities: JAVA, Gunung Ungaran and Gunung Gedeh. Type-depository: 3 ♀ 1 ♂ syntypes, Zool. Mus., Amsterdam. Subsequent references: de Meijere, 1919:28 (distr. recs. (Sumatra)); 1924:201 (synonymy, transfer to *Korinchia*). NEW COMBINATION.

De Meijere (1924:201) gave *Korinchia aurata* Hervé-Bazin as a synonym of his *Milesia simulans*. However, a comparison of the original descriptions of the 2 suggests that both are distinct, the main differences being in the color and type of pile on the scutellum. *Simulans* is stated to have black pile on the scutellum and as its name implies, *aurata* has bright golden appressed pile on the scutellum. I have studied a male from Java (Mt. Gede, Tjibodas; in AMNH) which agrees well with de Meijere's original description of *simulans*. The following characters were noted in addition to those mentioned by de Meijere in his original descriptions.

Antennae orange pilose except for 2 or 3 long ventral brown hairs on 2nd segment; 3rd antennal segment with a short inner sensory pit; mesocoxae with posterior surface pilose; posterior pteropleurae pilose; barrettes pilose medially, meropleurae with a few hairs in front of metathoracic spiracle; wings completely microtrichose; epalets black pilose; male genitalia almost virtually identical to those described above for *vivax* Thompson.

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Fig. 19-27. Male genitalia of *Palumbia (Korinchia)* species, lateral view except fig. 22-24 ventral view. Fig. 19-21. Ninth sternum and superior lobe. 19, *P. vivax* Thompson. 20, *P. tenax* Thompson. 21, *P. pendleburyi* (Curran). Fig. 22-24. Apical portion of 9th sternum and superior lobes. 22, *P. vivax* Thompson. 23, *P. tenax* Thompson. 24, *P. pendleburyi* (Curran). Fig. 25-27. Aedeagus and aedeagal apodeme (fig. 25 including ejaculatory apodeme also), lateral view. 25, *P. tenax* Thompson. 26, *P. pendleburyi* (Curran). 27, *P. vivax* Thompson.

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